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09/832,794	04/12/2001	Toru Fujihira	Q64074	1436

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EXAMINER

ROSSI, JESSICA

ART UNIT

PAPER NUMBER

1733

6

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/832,794

Applicant(s)

FUJIHIRA, TORU

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/10/03, Amendment A.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment dated 7/10/03. Claims 2-3 and 7 were canceled. Claim 8 was added. Claims 1, 4-6, and 8 are pending.
2. The rejection of claims 1 and 4-6 under 35 U.S.C. 103(a) as being unpatentable over Dean (of record) in view of Forster et al. (of record), as set forth in the previous office action, has been withdrawn in light of the added limitations to claim 1. However, upon updating the search examiner found prior art (issued after mailing of previous action) that could be used to rejection these limitations.
3. The rejection of claims 1 and 4-6 under 35 U.S.C. 103(a) as being unpatentable over Dean (of record) and Forster et al. (of record) and further in view of Wilden et al. (of record), as set forth in the previous office action, has been withdrawn in light of the added limitations to claim 1. However, upon updating the search examiner found prior art (issued after mailing of previous action) that could be used to rejection these limitations.

Claim Objections

4. Claim 8 is objected to because of the following informalities: --plate-- should be inserted after "press" in line 10. Appropriate correction is required.

Priority

5. Applicant cannot rely upon the foreign priority papers to overcome the rejections set forth below because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 4, 6, and 8 are rejected under 35 U.S.C. 103(a) as being obvious over Dean et al. (WO 99/39976; of record) in view of Forster et al. (US 5580502; of record) and Sato et al. (US 6551441), or alternatively, Sato in view of Dean.

*The applied reference (Sato '441) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

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With respect to claims 1, 6, and 8, Dean teaches a method for producing a composite panel 18/62 that may be used as an aircraft panel (Figures 12 and 27; p. 5, line 22). Dean teaches the panel 18/62 having a 3-D curved portion and a cylindrical portion (Figure 27). The method comprises placing an outer/base skin 41 made of a composite prepreg on a forming die/tool face (p. 17, lines 20-21; p. 18, lines 23-24; p. 16, lines 15-17), mounting a honeycomb core 50 on a portion of the outer skin that forms the 3-D curved portion (Figures 12 and 27; p. 17, lines 23-24; p. 19, lines 19-20), superimposing an inner skin (not shown in Figures) made of a composite prepreg onto the honeycomb core and outer skin (p. 17, lines 24-29) such that the inner skin extends across the complete extent of the outer skin (p. 17, lines 27-28), arranging preformed stiffener members 42-45 (Figure 12) or 42, 54 (Figure 27; note these stiffeners intersect at junctions 58) each made of a composite prepreg on a portion of the inner skin that forms the cylindrical portion to prepare an assembly (Figures 12 and 27; p. 17, lines 34-35; p. 19, lines 10-11 and 14-17; p. 21, lines 3 and 7 and 11-13), and forming the assembly by simultaneously curing the curved and cylindrical portions forming the panel (p. 17, lines 17-18; p. 19, lines 32-34; p. 21, lines 32-35). The reference is silent as to the stiffeners being frames and stringers, curing by heat and pressure, and disposing elastic and press plates on a portion where the inner and outer skins overlap.

One skilled in the art would have readily appreciated that "stiffeners" is a notoriously well-known and conventional term in the art that encompasses such things as stringers, ribs, spars, and frame members; all of which are used to strengthen a composite panel in the aircraft industry. Therefore, selection of particular "stiffeners" would have been within purview of the

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skilled artisan at the time the invention was made depending on the final use of the panel; it being noted that the stiffeners of Dean intersect (Figure 27) just as those of the present invention.

It is known in the art to make a composite panel for an aircraft by simultaneously curing an assembly comprising inner and outer composite prepreg skins having a honeycomb core between them and a composite prepreg stiffener member arranged on the inner skin using heat and pressure, as taught by Forster (Figure 4; column 3, lines 45-46; column 4, lines 10-11; column 5, lines 3-7 and 10-13; column 8, lines 3-15 and 22-29 and 40-45; column 9, lines 50-51; column 10, lines 2-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to cure the assembly of Dean using heat and pressure because such is known in the art, as taught by Forster, and this results in formation of a well bonded and consolidated panel.

It is known in the composite panel art to sandwich a honeycomb panel 3 between inner and outer prepreg skins 2, 2' wherein curved and cylindrical portions (Figures 7 and 9) comprising the panel are placed on a forming die 1 and simultaneously cured using heat and pressure, as taught by Sato (Figures 7 and 9; column 1, line 8; column 3, lines 49-53; column 4, lines 2-3). Sato also teaches placing elastic plates 4 and press plates 5 on portions of the composite panel where honeycomb is not present and the inner and outer skins overlap such that slipping of the skins is prevented during curing thereby preventing crushing of the honeycomb (column 3, lines 55-63; column 1, lines 10-11).

Therefore, since Dean teaches the inner and outer skins overlapping in areas where honeycomb is not present (p. 17, lines 27-28), it would have been obvious at the time the invention was made to place elastic plates and press plates on these overlapping areas during

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curing because such is known, as taught by Sato, and this prevents slipping of the skins thereby preventing crushing of the honeycomb.

Alternatively, it would have been obvious to the skilled artisan at the time the invention was made to arrange a preformed frame member and stringer member each made of a composite prepreg on a portion of the inner skin of Sato prior to curing the assembly because such is known in the composite panel art, as taught by Dean, and this would strengthen the panel of Sato thereby making it suitable for use in an aircraft body.

Regarding claim 4, selection of a particular pressure would have been within purview of the skilled artisan at the time the invention was made depending on the materials used.

However, Sato teaches curing at a pressure of 6-7 kg/cm² (column 5, lines 3-5).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dean et al., Forster et al., and Sato et al., or alternatively, Sato and Dean as applied to claim 1 above, and further in view of Matsui et al. (US 6523246).

*The applied reference (Matsui '246) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that

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the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 5, Dean teaches the stiffeners 42 being arranged at linear intervals on a portion of the inner skin that forms the cylindrical portion, the stiffeners 54 passing through the intervals and intersecting the stiffeners 42, and curing the assembly while using forming jigs/tools engageable with the skin and stiffeners (Figures 9 and 27; p. 16, lines 15-17; p. 19, lines 32-34; p. 22, lines 11-13).

It is known in the art to place intersecting frames 1 and stringers 2 on a surface of a flat or curved composite panel 7 wherein elastic jigs 5 engage the frames and stringers at their intersection points and rigid jigs 6 attach to the frames and stringers where they do not intersect (Figures 2 and 7; column 2, lines 15-20 and 45-47; column 4, lines 1-8 and 55-56; column 4, line 66 - column 5, line 3; column 5, lines 43-47) during curing of the same such that the jigs provide a cured composite panel having excellent dimensional and positional accuracy (column 1, lines 16-17), as taught by Matsui.

It would have been obvious to the skilled artisan at the time the invention was made to use elastic and rigid jigs in the locations claimed by the present invention during curing of the composite panel of Dean or Sato because such is known in the art, as taught by Matsui, and this would provide a cured composite panel having excellent dimensional and positional accuracy.

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9. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dean et al., Forster et al., and Sato et al., or alternatively, Sato and Dean as applied to claim 1 above, and further in view of Wilden (US 5242523; of record).

With respect to claims 1, 6, and 8, it is noted the examiner interpreted the “stiffeners” of Dean to encompass frames and stringers, which are well-known and conventional in the art as set forth in the 103 rejection above. If it is not taken as such, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use composite prepreg frames and stringers for the stiffeners of Dean because such are known in the art for reinforcing a composite aircraft panel, as taught by Wilden (Figure 3; column 1, lines 21-22 and 52-55; column 4, lines 49-51 and 61-65; column 7, lines 30-33; column 10, lines 1-5), where only the expected results would have been achieved.

Regarding claim 5, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a combination of flexible and rigid jigs/tools in contact with the frames and stringers of Dean or Sato during curing of the same because such is known in the art, as also taught by Wilden (note rigid pressure bridges and flexible cauls; column 4, lines 60-66; column 6, lines 31-32; column 2, lines 58-59), where this allows for varying pressure application during the curing cycle.

Response to Arguments

10. Applicant's arguments filed 7/10/03 have been fully considered but they are not persuasive.

11. On pages 6-7 of the arguments, Applicants argue that Dean fails to teach forming the assembly by heating under pressure.

The examiner does not disagree but invites Applicants to reread the obviousness rejection set forth in paragraph 7 above.

12. On page 7 of the arguments, Applicants argue Forster fails to teach a cylindrical portion and elastic plates and press plates.

The examiner points out that Forster was only used to show it is known in the art to simultaneously cure by heating under pressure an assembly comprising a honeycomb core sandwiched between inner and outer prepreg skins and stiffener members located on the inner skin.

13. On page 7 of the arguments, Applicants argue that Wilden fails to teach elastic and press plates on fin portions where inner and outer skins overlap.

The examiner points out that Wilden was only used to show that panel reinforcements, such as frames and stringers, are known in the art wherein flexible and rigid jigs are placed on these reinforcements during curing of the same.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **703-305-5419**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jessica L. Rossi
Patent Examiner
Art Unit 1733



jl
July 30, 2003


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700